

Clinical Guidelines for Selecting Loupes

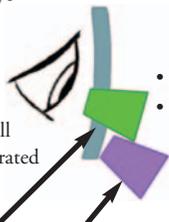
Gordon's Clinical Observations: Although once thought to be an elective item, loupes are now used by nearly all dentists and are gaining popularity among hygienists. However, you may need new loupes because of the numerous improvements that have been made since their introduction many years ago. What is the most popular magnification level? Should a headlamp be used routinely? What is loupe declination angle, and is it important? *In this issue, CR clinicians and scientists answer these questions for you.*

A recent CR survey of over 1600 clinicians showed that over 90% of dentists surveyed use loupes. However, because not all loupes are ergonomic, simply wearing loupes doesn't ensure a healthy posture or eliminate leaning/hunching over the oral cavity (*some models may exacerbate poor posture*). While ergonomics/posture is just one of many factors to consider when choosing loupes, nearly 90% of loupe wearers rated loupe ergonomics as either *very or extremely important*. **The following report will guide you as you decide to stay with current loupes, or consider a new pair.**

Loupe Optics

Fixed: Through-the-Lens (TTL)

- Used by 76% (*CR survey data*)
- Optics mounted closer to eye
 - Larger field of view
 - Well balanced
- Customized to individual
 - Lower maintenance
 - Retains alignment well
 - Prescriptions incorporated into optics



Through-the-Lens Flip-up

Flip-up

- Used by 20% (*CR survey data*)
- Optics farther from eye
 - Greater declination angles achievable
- Lower cost
- Ready-to-wear
 - Adjustments made by clinician (*may require frequent realignment*)
 - Prescription (*lens only*) changed by local optician
- Optics "flip up" when not in use



Galilean (2x-3.5x)

- Lighter weight (*shorter optics*)
- Larger width of field
- Lower cost
- Loupe novices adapt to optics easier
- Longer depth of field (*broader range in focus*)

Prismatic (3.5x-8x)

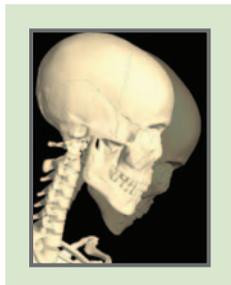
- Stronger magnification (*up to -8x*)
 - Requires precise alignment and heavy-duty frames
- Sharper resolution
- Expanded field optics available

Loupe Ergonomics

There is a growing trend toward more ergonomic loupes with longer working distances, higher magnification, and greater declination angles (*the angle at which the loupe optics are inclined downward*) which facilitate a neutral working position and better neck and back posture. The most common working distance was 18 inches (*16.4% CR survey data*), and many experts recommend declination angles >35° and head tilt angles <25° (*a delicate balance between neck strain and eye strain must be maintained*). Loupes can immediately improve posture, if proper measurements are selected. Most larger companies will send a representative to your office to obtain ideal measurements.



Longer working distances promote a more upright working position. (*This distance is determined by the clinician, and then set by the loupe manufacturer.*)



Greater declination angles reduce head tilt, improve neck posture and reduce muscle/ligament strain.



Some modern frames (*pictured: Ergo Max by SurgiTel*) offer improved declination angles (*notice the slant of both lenses and frame, allowing the optics to decline more*).

Skeletal images created using KineMan Pro

Lighting

Longer, more ergonomic working distances often require increased magnification to compensate for the added distance. This increased magnification requires additional light, and many consider headlamps essential for use of operating loupes (*78.1% of loupe wearers wear a headlamp*). (See *Clinicians Report April 2012* for excellent, lightweight LED headlamps.) New lightweight, cordless LED headlamps are now available.

Popular Brands of Loupes (from CR Survey)

Brand	% Use (CR Survey)	User Comments and Features
Orasoptic	40.1%	Most popular brand, excellent resolution
Designs for Vision	31.9%	Excellent comfort, customer support, and easy to clean
SurgiTel	12.1%	Excellent declination angle, lightweight

Clinical Guidelines for Selecting Loupes (Continued from page 1)

Clinical Tips

- **Have current eye exam** before ordering loupes as prescriptions are incorporated into custom loupes.
- **Novice loupe users:** Start with low magnification (~2.5x) or expanded field loupes for a larger field of view. Wear loupes for short periods each day as your eyes gradually adjust.
- **Try multiple brands before you buy.** Each clinician is different; try loupes out at dental meetings or try on a colleague's pair to see how they feel. But if buying fixed TTL loupes, have a representative measure the proper interpupillary distance, working distance, declination angle, etc.
- **Premium vs. Inexpensive:** Quality optics are expensive. While some inexpensive models work well, many have inferior optics and ergonomics, or may have unreliable customer support.
- **Frames** must be stable enough to support significant weight (*optics, headlamp, etc.*) without misaligning oculars.
- **Comfort:** Carefully adjust frames, nose pads, etc., and use adjustable head strap to prevent slipping and for comfort/support.
- **Cleaning:** Loupes should be disinfected and cleaned regularly with warm, soapy water (*see manufacturer guidelines*). (*See Clinicians Report February 2015 for example protocol.*)
- **Exercise your eyes to avoid strain/fatigue.** Occasionally look up, or take loupes off and focus on a distant object away from the lens.
- **Consider multiple loupes** for different procedures and as a backup. 2.5x is most common and used for routine procedures. 4.5x can be used for more delicate procedures: margin refinement, locating calcified canals, root tip retrieval, etc. The EyeZoom loupes (*Orasoptic*) offers 3x, 4x, and 5x adjustments on the same loupe.
- **Evaluate your working posture:** How is your posture? Ask a co-worker, or have them observe or video you as you treat patients.

CR Conclusions:

Clinicians are trending toward ergonomic loupes with longer working distances, higher magnification and greater declination angles. Longer working distances facilitate better posture and a neutral working position; however, **images will appear smaller unless magnification is also increased.** Reduce neck and back strain with greater declination angles. When selecting operating loupes additionally consider; cost; weight (*including headlamp*); depth and width of field; and post-purchase customer support. Operating loupes improve treatment with better visualization and can be customized to fit the practitioner's needs.

What is CR?

WHY CR?

CR was founded in 1976 by clinicians who believed practitioners could confirm efficacy and clinical usefulness of new products and avoid both the experimentation on patients and failures in the closet. With this purpose in mind, CR was organized as a unique volunteer purpose of testing all types of dental products and disseminating results to colleagues throughout the world.

WHO FUNDS CR?

Research funds come from subscriptions to the *Gordon J. Christensen Clinicians Report*®. Revenue from CR's "Dentistry Update"™ courses support payroll for non-clinical staff. All Clinical Evaluators volunteer their time and expertise. CR is a non-profit, educational research institute. It is not owned in whole or in part by any individual, family, or group of investors. This system, free of outside funding, was designed to keep CR's research objective and candid.

HOW DOES CR FUNCTION?

Each year, CR tests in excess of 750 different product brands, performing about 20,000 field evaluations. CR tests all types of dental products, including materials, devices, and equipment, plus techniques. Worldwide, products are purchased from distributors, secured from companies, and sent to CR by clinicians, inventors, and patients. There is no charge to companies for product evaluations. Testing combines the efforts of 450 clinicians in 19 countries who volunteer their time and expertise, and 40 on-site scientists, engineers, and support staff. Products are subjected to at least two levels of CR's unique three-tiered evaluation process that consists of:

1. Clinical field trials where new products are incorporated into routine use in a variety of dental practices and compared by clinicians to products and methods they use routinely.
2. Controlled clinical tests where new products are used and compared under rigorously controlled conditions, and patients are paid for their time as study participants.
3. Laboratory tests where physical and chemical properties of new products are compared to standard products.

THE PROBLEM WITH NEW DENTAL PRODUCTS.

New dental products have always presented a challenge to clinicians because, with little more than promotional information to guide them, they must judge between those that are new and better, and those that are just new. Due to the industry's keen competition and rush to be first on the market, clinicians and their patients often become test data for new products.

Every clinician has, at one time or another, become a victim of this system. All own new products that did not meet expectations, but are stored in hope of some unknown future use, or thrown away at a considerable loss.

To help clinicians make educated product purchases, CR tests new dental products and reports the results to the profession.



Clinical Success is the Final Test

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